Madigan Army Medical Center
Referral Guidelines

Electrodiagnostic Studies (EMG/NCV/Evoked Potentials)

Diagnosis/Definition

Test used for the diagnosis of pathologic conditions of nerve and/or muscle.
Physiologic tests of nerve and muscle function using small electric shocks and thin needles into various muscles.

Initial Diagnosis and Management

- Patients with complaints of pain, parasthesias, weakness.
- Initial examination with presumptive diagnosis.
- NSAIDs.
- Bracing if necessary (i.e. for carpal tunnel syndrome).

Ongoing Management and Objectives

Reduction in duration/extent of syndrome.

Patient Education:
It is an uncomfortable exam that is used to evaluate for muscle and nerve abnormalities. It is in 2 parts:

1. Nerve conduction (NCS) involves a short electrical impulse to evaluate the nerves.
2. Electromyography (EMG) involves a small pin to evaluate muscles and nerves.

Instruct the patient to wear APFTU or Tshirt and shorts for the appointment.

Indications for Specialty Care Referral

- Physical Therapy referral for appropriate modality, exercise, education program.
- No relief of acute symptoms in 3 weeks, symptoms increasing or symptom recurrence. (May be seen sooner than 3 weeks for certain conditions for which EMG/NCV may have value earlier in the course of disease, e.g. Guillain-Barre; acute toxic neuropathies, such as lead, some cases of Bell's Palsy. In general, if it is felt that there is some urgency needed in the evaluation, then the case should be DISCUSSED with one of the PM&R staff physicians.)
- Referrals for single fiber EMG should be directed to Neurology. Discussion with a neurologists prior to the consultation is mandatory.
- Pediatric patients should be DISCUSSED with a Neurology or PM&R staff physician before referral.
- Further evaluation with EMG, NCV, or Evoked Potential (somato-sensory, brain stem, auditory or visual evoked potentials) or other lab tests for definite diagnosis to either Neurology or PM&R.

- <u>Indications for Referralto Neurology or PM&R:</u>

  1) Carpal tunnel syndrome

-Refer for EMG if patient has CONSTANT or DAILY numbness and/or tingling associated with sensory loss to the hand, thenar muscle weakness or atrophy.

-For intermittent sensory symptoms and no thenar muscle weakness or atrophy, initiate a six week trial of conservative management with wrist splints and NSAIDs. Refer for EMG if symptoms do not resolve after 6 weeks.

2) Ulnar neuropathy

-Refer for EMG if patient has CONSTANT numbness and/or paresthesias of the 4th and 5th fingers for more than 3 weeks, and/or weakness in the muscles innervated by the ulnar nerve.

-If patient has intermittent sensory symptoms, then initiate a 6 week trial of conservative management with an elbow pad and avoiding pressure on the elbow. Refer for EMG if symptoms do not resolve after 6 weeks.

3) Radiculopathy

-Refer for EMG if patient has radicular pain with a dermatomal distribution and a physical examination with focal weakness or diminished reflexes.

- There is evidence of nerve root compression on MRI, with corresponding symptoms.

Thegoals of EMG is to CONFIRM the diagnosis, and to specify the level of lesion.

4) Polyneuropathy

-Refer for EMG if patient has CONSTANT numbness and tingling in the feet and/or weakness. Do not refer for EMG for sensory symptoms limited to the toes.

-If a patient is a diabetic, refer for EMG if the neuropathy persists even with good serum glucose control.[1]

5) Peripheral nerve injury[2]

- Refer to EMG for traumatic injuries to the extremities, with poor return of function. Studies are most helpful if conducted 3 weeks after the initial injury.

-EMG will help to determine location, severity, and prognosis for recovery.

-If consult is needed earlier than 3 weeks post-injury, discuss the case with the PM&R staff physicians.

6) General principles

-Every referral for EMG should include a DIRECTED question related to a specific diagnosis that the referring provider is trying to confirm. If the referring provider is unsure of the question, then he or she should refer the patient to the Neurology Clinic to help localize the lesion and determine the need for an EMG.

-A detailed peripheral neurological examination of the affected extremities should be documented by the referring provider, to include strength exam, pin prick and vibration or proprioception, and reflexes.

Criteria for Return to Primary Care

- Resolution/plateau of symptoms and for on-going management of symptoms.
- Completion of full course of treatment.
- Completion of EMG/NCV/Evoked Potentials procedures as requested.

References

1. Perkins BA, Bril V. Diabetic neuropathy: a review emphasizing diagnostic methods. Clin Neurophysiol. 2003 Jul;114(7):1167-75.

2. Campbell WW. Evaluation and Management of Peripheral Nerve Injury. Clin Neurophysiol. 2008 Sep;119(9):1951-65. Epub 2008 May 14.

Last Review for this Guideline: **May 2012**
Referral Guidelines require review every three years.

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